



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P1346/WOD		FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/GB2004/000251		International filing date (day/month/year) 21.01.2004	Priority date (day/month/year) 21.01.2003	
International Patent Classification (IPC) or national classification and IPC B04C5/20, B04C5/18, B04C3/02, B04C9/00, B04C11/00, F16L53/00				
Applicant THE SECRETARY OF STATE FOR DEFENCE et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input checked="" type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 20.08.2004		Date of completion of this report 10.01.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Leitner, J Telephone No. +49 89 2399-7924 		

**INTERNATIONAL PRELIMINARY REPORT
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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-17 as originally filed

Claims, Numbers

1-15 as originally filed

Drawings, Sheets

1/5-5/5 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 15

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 15 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

☐ has not been furnished

☐ does not comply with the standard

the computer readable form

☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ See separate sheet for further details

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
 - ☒ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
 - ☐ the parts relating to claims Nos. .

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-12
	No: Claims	13,14
Inventive step (IS)	Yes: Claims	
	No: Claims	1-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item III

Claim 15 contains a reference to the description and the drawings. It is unclear which technical features, necessary for the invention, are claimed. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.

Re Item IV

The present application contains claims directed to two different inventions which are not linked together to form a **single general inventive concept** (Rule 13.1 PCT).

The separate groups of invention are:

1. Claims: 1-12

Apparatus for collecting particles comprising a cyclone, air inlet and outlet means, means for delivering a collecting fluid and means for heating the incoming air associated with the air inlet means.

2. Claims: 13, 14

Heating block for heating a tube comprising a plurality of segments including a half-cylindrical surface and mounting means for mounting the segments to a tube, comprising hinged box members for receiving the segments.

The inventions listed in groups 1-2 do not relate to a single general inventive concept under Rule 13(1) and (2) PCT, because they lack the same or corresponding special technical features for the following reasons:

The only technical feature in common between these groups of inventions is the heating means for heating the incoming air which is known from the prior art.

The remaining features of the two different subject matters address different technical problems by means of different technical features.

The prior art according to WPI accession no. 1978-33319A (=SU-558710) (as well as other prior art documents from the International Search Report), discloses an apparatus for collecting particles comprising a cyclone, air inlet and outlet means, and means for heating the incoming air associated with the air inlet means.

The special technical feature of group 1 is the means for delivering a collecting fluid in order to be able to collect a sample of separated particles for analysis.

The special technical feature of group 2 is that the heating block for heating an air inlet tube comprises a plurality of segments and mounting means for mounting the segments to the tube, comprising hinged box members for receiving the segments. These features simplify the mounting of a heating block to a tube.

Re Item V

1. Prior Art

The following documents D1- D8 are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- D1: DATABASE WPI Section Ch, Week 197818 Derwent Publications Ltd., London, GB; Class J01, AN 1978-33319A XP002278766 -& SU 558 710 A (KUZNT COAL ENRICHME), 7 July 1977 (1977-07-07)
- D2: PATENT ABSTRACTS OF JAPAN vol. 013, no. 021 (C-560), 18 January 1989 (1989-01-18) -& JP 63 224754 A (MITSUI ENG & SHIPBUILD CO LTD), 19 September 1988 (1988-09-19)
- D3: CH 251 108 A (ANDERMATT KARL) 15 October 1947 (1947-10-15)
- D4: DE 20 04 808 B (F. HIRSCHMANN) 22 October 1970 (1970-10-22)
- D5: WO 89/10795 A (CONOCO SPEC PROD) 16 November 1989 (1989-11-16)
- D6: US 2002/078826 A1 (DAY PETER JOHN) 27 June 2002 (2002-06-27)
- D7: DE 34 28 539 A (STEGMEIER HEINZ) 13 February 1986 (1986-02-13)
- D8: US-A-1 971 387 (SCOVILLE FRANK E) 28 August 1934 (1934-08-28)

2. Inventive Step (Article 33(3) PCT)

The subject matter of **claim 1** is not considered to involve an inventive step for the following reasons.

D1 discloses (the references in parenthesis applying to this document) an apparatus for collecting particles comprising a cyclone(1), air inlet (2) and outlet (3) means, and means (6-9) for heating the incoming air associated with the air inlet means.

These features are also known from D2 - D5.

The subject matter of claim 1 **differs** therefrom in that means for delivering a collecting fluid from a reservoir to particles in the cyclone are foreseen. This feature is well known in the art (see description of the present application, page 1, lines 8 - 15) or D6, so that the use of inlet air heaters for cyclones including that aforementioned feature would be obvious for the skilled person.

The features of the **dependent claims 2 - 12** are either known from the documents cited in the International Search Report for the same purpose as in the present application or lie within the general knowledge of the skilled person, therefore they are not considered to involve an inventive step.

3. Novelty (Article 33 (2) PCT)

The present application does not meet the requirements of Article 33 (2) PCT, because the subject matter of **claim 13 is not novel**.

The document D7 is regarded as being the closest prior art and discloses (the references in parentheses applying to this document):

A heating block assembly comprising a plurality of half cylindrical heating block segments (10) and mounting means (26) for mounting the segments to a tube to be heated, in which the mounting means comprise hinged box members for receiving the segments (10), whereby closure of the box members places the half cylindrical surface of the segments in contact with the outer surface of the tube.

Thus, D1 discloses all the features of **independent claim 13**, which therefore lacks novelty.

The screw clamping means of **claim 14** is also known from D7 and lacks therefore also novelty.

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The features of claims 13 and 14 are also known from D8 and lack therefore novelty
in view of this document.